

WE CLAIM:

Sub 1
1. An isolated nucleic acid having a nucleotide sequence comprising at least one of the following sequences: SEQ ID 1, 3, 5, 7, 9, 11, 13, 15, 17 or 19.

5 2. The nucleic acid of Claim 1, wherein the nucleotide sequence includes SEQ ID 1, 3, 5, 7, 9, 11, 13 and 15.

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10 3. The nucleic acid of Claim 2, wherein the nucleotide sequence further includes SEQ ID 17 and 19.

11 4. An isolated nucleic acid having a DNA sequence complementary to the nucleotide sequence of Claim 1, or Claim 2 3

Sub 1
15 5. An isolated nucleic acid having a nucleotide sequence comprising at least one of the following sequences: SEQ ID 21, 23, 25, 27, 29, 31, 33, 35, 37 or 39.

6. The nucleic acid of Claim 5, wherein the nucleotide sequence includes SEQ ID 21, 23, 25, 27, 29, 31, 33, 35, 37 and 39.

20 7. An isolated nucleic acid having a DNA sequence complementary to the nucleotide sequence of Claim 5.

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25 8. A nucleic acid comprising a first polynucleotide coding for a surface protein of a selected wild type influenza virus and a second polynucleotide operatively-linked thereto, wherein the second polynucleotide has a nucleotide sequence comprising at least one of the following sequences: SEQ ID 1, 3, 5, 7, 9, 11, 13 or 15.

30 9. The nucleic acid of Claim 8, wherein the nucleotide sequence includes SEQ ID 1, 3, 5, 7, 9, 11, 13 and 15.

10. A substantially pure amino acid having a polypeptide sequence selected from the group consisting of at least one of the following sequences: SEQ ID 2, 4, 6, 8, 10, 12, 14, 16, 18 or 20.

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11. A substantially pure amino acid having a polypeptide sequence selected from the group consisting of at least one of the following sequences: SEQ ID 22, 24, 26, 28, 30, 32, 34, 36, 38 or 40.

12. A vaccine comprising a reassortant virus, the virus further comprising a first polynucleotide coding for a surface protein of a selected wild type influenza virus and a second polynucleotide operatively-linked thereto, wherein the second polynucleotide has a nucleotide sequence comprising at least one of the following sequences: SEQ ID 1, 3, 5, 7, 9, 11, 13 or 15.

13. A method of preventing influenza in a patient comprising the step of introducing a cold-adapted reassortant influenza virus vaccine into the patient, wherein the cold-adapted reassortant influenza virus vaccine comprises a first polynucleotide surface protein of a selected wild type influenza virus and a second polynucleotide operatively-linked thereto, wherein the second polynucleotide has a nucleotide sequence comprising at least one of the following sequences: SEQ ID 1, 3, 5, 7, 9, 11, 13 or 15.

14. A method of treating influenza in a patient comprising the step of introducing a cold-adapted reassortant influenza virus vaccine into the patient, wherein the cold-adapted reassortant influenza virus vaccine comprises a first polynucleotide coding for a surface protein of a selected wild type influenza virus and a second polynucleotide operatively-linked thereto, wherein the second polynucleotide has a nucleotide sequence comprising at least one of the following sequences: SEQ ID 1, 3, 5, 7, 9, 11, 13 or 15.

15. Isolated wild type A/Ann Arbor/6/60 viral strain.

16. Isolated cold-adapted A/Ann Arbor/6/60 viral strain.

17. The vaccine of Claim 12, wherein the selected wild type influenza virus is selected from the group consisting of the wild type influenza viruses set forth in Table 8.

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